

FEATURE ATHLETIC PERFORMANCE ARTICLE: Are you getting enough sleep??

Dr. Thomas Lam, AOA Fitness Director

Everyone appreciates that sleep is vital to performance and health. However, sleep is often the neglected in our busy lives. In this article we will briefly highlight some of the functions of sleep and provide guidelines to help improve your sleep habits.

Function of Sleep

Sleep makes up 1/3 of our lives and it provides a range of restorative functions that effect behaviour, physiological function, performance and mood. Specifically during sleep:

- The skeleton decompresses and absorbs fluid and nutrients, which is especially important for cartilagenous tissues (e.g. spinal discs) that are stressed during activity but have limited blood supply.
- Metabolic rate decreases ~10% and body temperature drops 2-3°F, conserving energy.
- Secretion of certain hormones and growth/immune factors peaks during NREM sleep.
- The brain replenishes its neurotransmitters during REM sleep and performs other “housekeeping” tasks in centers that control thinking, learning and emotions.
- The high amounts of sleep — especially REM — during infancy and childhood are evidence of its importance for growth and development (e.g. newborns sleep 16-18 hours/day, about half of which is REM; whereas adults need about 8 hours/day, less than a quarter of which is REM).

Without question we’ve all experienced sleep deprivation. The problem is we are not able to know when we are sleep deprived. What is completely obvious to others, you will not realize. This makes the impact of sleep deprivation even more serious. For example, in a recent study staying awake for 30hours is equivalent as driving under the influence. When these people were interviewed in the study, they said they felt fine. However they slurred their words and demonstrated significant delays in responded to questions with gross motor and cognitive impairments. They had impaired concentration, critical thinking and impaired decision making abilities. Their learning capacities and memory were also impaired.

Here are some signs that you may indicate that you are not getting the sleep that you need:

- Difficulty waking up when your alarm sounds, even if set at the same time every day; or staying alert and attentive in boring/monotonous situations (note that an early afternoon dip in alertness is normal)
- Impaired concentration, critical thinking or decision making ability, learning capacity, memory (especially short term), motor skill etc.
- Reduced attentiveness, creativity, motivation, perceptiveness, productivity etc.
- Increased irritability, stress, accidents, mistakes etc.

- **Get 1 hour of sleep for every 2 hours you're awake every day.** Sleep loss impairs performance and health. Its effects are cumulative; you never adapt to it. The only way to function optimally is to minimize your "sleep debt".
- **Keep regular hours whenever possible.** Use sunlight to set your biological clock; get outdoors during the day (especially in the morning) and use as much natural illumination as possible when indoors. Get up and go to bed at the same times each day, including weekends. Occasional deviations will happen; the key is to return to your regular schedule and keep an eye on the bottom line — total sleep.
- **Make your bedroom a restful place to sleep — cool, dark, quiet, secure and comfortable!** Ideal room temperature is 60-65°F [16-18°C]. Light is a powerful alerting/waking cue; a dark room is most conducive to sleeping. Steady, low-level sounds (e.g. fan, air conditioner, "white noise" generator) help block out distracting noises. Your bed should be firm enough to support you comfortably.
- **Exercise regularly.** Training helps relieve stress and improve sleep. Workout timing is important; mornings or afternoons are preferable to evenings. Exercise increases alertness and body temperature, but the subsequent decrease over the next several hours helps induce sleep.
- **Avoid stimulants (caffeine, nicotine) and excessive alcohol intake, especially in the afternoon and evening.** Caffeine and nicotine delay sleep onset and increase nighttime waking. Alcohol is a depressant, but excess consumption interrupts and fragments sleep.
- **Develop a bedtime routine and make sleep a priority.** Regular evening habits give subconscious cues to relax and prepare for sleep. "Switch off" — put away your to do list, set aside concerns for the day, and avoid exposure to bright light in the evening.
- **Have a light, balanced meal or snack before bedtime.** This helps minimize nighttime catabolism; whereas an empty stomach or heavy meal can interfere with sleep.
- **If you don't fall asleep within 20-30 minutes, get up and do something boring or relaxing until you feel tired.** Don't stay in bed tossing and turning, expose yourself to bright light or use this time to solve daily problems.
- **Take "power naps" in the late morning or early afternoon to repay sleep debts.** Daytime napping is valuable when recovering from information overload (intensive learning/problemsolving sessions), struggling to stay alert or making up for lost sleep.

Sources: [BETTER SLEEP COUNCIL](#); [NATIONAL SLEEP FOUNDATION](#); [POWER SLEEP](#); [THE SLEEP WELL](#); [Excelsior Sports](#)

Dr. Thomas Lam
AOA Fitness Director

thomaslam@fitstoronto.com

www.fitstoronto.com (visit the site for more information about Athletic Development and to learn about our athletic development programs and sport medicine services)